

CLAIMS

We claim:

- 1 1. A method for treating an electroless plating solution, the method comprising:
2 providing a reaction vessel containing an anode, a cathode, a drain and a
3 nozzle, wherein the nozzle is in fluid communication with the drain;
4 disposing the electroless plating solution in the reaction vessel such that
5 the anode and the cathode are at least partially immersed in the plating solution;
6 recirculating the plating solution through the reaction vessel by draining
7 the plating solution from the reaction vessel through the drain and subsequently
8 re-injecting the plating solution into the reaction vessel through the nozzle;
9 placing the anode and cathode in electrical communication with a power
10 source and driving an electrical current through the anode and the cathode to
11 produce a treated plating liquid.
- 1 2. The method of claim 1, including oxidizing plating solution reducing agents at
2 the anode and reducing plating solution metal salt at the cathode.
- 1 3. The method of claim 1, additionally comprising sparging the reaction vessel with
2 an inert gas to create a sparge gas.
- 1 4. The method of claim 3, wherein said sparging the reaction vessel includes
2 removing residual liquid from the sparge gas and venting the sparge gas to a
3 hydrogen gas scrubber.
- 1 5. The method of claim 3, wherein the inert gas consists essentially of nitrogen gas.
- 1 6. The method of claim 1, wherein the anode comprises steel and the cathode
2 comprises brass.
- 1 7. The method of claim 1, wherein the plating solution is maintained at a temperature
2 of about 50 degrees C or less.

- 1 8. The method of claim 1, wherein the electrical current is between about 1 and
2 about 10 amperes.
- 1 9. The method of claim 1, additionally comprising exposing the treated plating liquid
2 to an ion exchange resin.
- 1 10. The method of claim 1, wherein the reaction vessel additionally comprises a metal
2 compound-restrictive filter disposed such that only substantially metal particle-
3 free liquid passes through the drain.
- 1 11. The method of claim 1, including monitoring the progress of the treating.
- 1 12. An apparatus for treating an electroless plating liquid, the apparatus comprising:
2 a reaction vessel;
3 a cathode and an anode in electrical communication with a power source,
4 wherein the cathode and anode are disposed in the interior of the reaction vessel;
5 a drain disposed in the reaction vessel;
6 a nozzle in fluid communication with the drain, disposed in the reaction
7 vessel such that the nozzle and the drain are separated by the cathode and the
8 anode.
- 1 13. The apparatus of claim 12, additionally comprising a gas sparger in
2 communication with an inert gas source.
- 1 14. The apparatus of claim 13, wherein the reaction vessel is vented and in
2 communication with a hydrogen gas scrubber.
- 1 15. The apparatus of claim 12, wherein the reaction vessel additionally comprises a
2 heat exchanger.
- 1 16. The apparatus of claim 12, wherein the anode comprises steel and the cathode
2 comprises brass.

- 1 17. The apparatus of claim 12, additionally comprising a metal compound-restrictive
2 filter disposed such that only liquid substantially free of metal particles passes
3 through the filter and through the drain.